

NEW JUNIOR SYNONYMS OF
FRANKLINIELLA RETICULATA AND *F. SIMPLEX*
(THYSANOPTERA: THRIPIDAE)

SUEO NAKAHARA

Systematic Entomology Laboratory, PSI, Agricultural Research Service, USDA,
10300 Baltimore Avenue, Beltsville, Maryland 20705-2350

Abstract.—*Frankliniella brunnea* Priesner, *F. fuscipennis* Moulton, *F. inopinata* Moulton, and *F. tridacana* Hood are junior synonyms of *F. reticulata* (Crawford), **NEW SYNONYMY**. The lectotype of *F. adadusta* Moulton is a junior synonym of *F. simplex* Priesner, **NEW SYNONYMY**, and the paralectotype is a different species, *F. reticulata*.

In a review of the junior synonyms of *Frankliniella cephalica* (Crawford) treated by Jacot-Guillarmod (1974:767), *Euthrips cephalica* var. *reticulata* Crawford (1910:155) was revalidated as a species in *Frankliniella* (Nakahara, 1992:415). The lectotype of *F. reticulata* was collected from Guadalajara, Mexico. Because of its close resemblance to *F. fuscipennis* Moulton (1948:105), the lectotype was compared with the holotype of *F. fuscipennis* from Guatemala and seven paratypes from Mexico. Although the measurements of several morphological characters of *F. fuscipennis* are generally greater than those of *F. reticulata* (Table 1), I conclude that *F. fuscipennis* is a junior synonym of *F. reticulata*, **NEW SYNONYMY**. Moulton (1948:105) states that the posteromarginal comb on abdominal tergite VIII of *F. fuscipennis* is absent medially. The comb of the holotype lacks microtrichia medially, but the paratypes have complete combs of short, sparse microtrichia. Those of the holotype apparently were broken off.

The holotype of *F. brunnea* Priesner (1932:174) from Mexico examined in this study has several morphological characters longer than the lectotype of *F. reticulata* and type series of *F. fuscipennis* (Table 1). However, the pedicel of antennal segment III, position of interocellar setae, posteromarginal comb on abdominal tergite VIII and general coloration are similar; I therefore consider *F. brunnea* to be a large specimen of *F. reticulata*, **NEW SYNONYMY**.

The type series of *Frankliniella tridacana* Hood (1937:104) from Panama is similar in color to the types of *F. fuscipennis* (= *F. reticulata*). Although measurements of several characters are shorter (Table 1), other characters of the females and males are similar. Thus, I consider *F. tridacana* to be a smaller form of *F. reticulata*, **NEW SYNONYMY**.

According to Moulton (1948:107), *Frankliniella inopinata* was described from a female and male taken in flowers of *Lantana* sp. at Cuernavaca, Mexico, by K. L. Krauss. The allotype slide has the aforementioned collection data and is labeled "*Frankliniella inopina* Mlt" with "*ta*" added in pencil. The holotype slide is labeled "*Frankliniella inopinus* Moulton" with the following collection data: Hidalgo, Texas 2152, 37-7448, Mexico, cutflowers, III-13-37, A. L. Williams. A card with the holotype slide contains the same measurements given in the description, and therefore,

Table 1. Measurements of types.

	<i>reticulata</i> (1)	<i>brunnea</i> (1)	<i>fuscipennis</i> (8)	<i>tridacana</i> (6)
Body length	1.33	1.5	1.37–1.55	1.27–1.52
AIII	47	57–59	49–54	43–49
IO setae	49	69	49–62	47–49
AM setae		64	47–64	40–52
PAI setae	74	94	67–91	54–72
PAO setae	62	86	62–79	56–62
B1 setae on IX	106	133	106–143	101–119

() = number of type specimens measured; AIII = antennal segment III; IO = interocellar; AM = anteromarginal; PAI = posteroangular inner; PAO = posteroangular outer; B1 = median pair. Measurements are in microns except for body length which is in millimeters.

I consider it to be the holotype of *F. inopinata*. Moulton apparently forgot to change the name to *inopinata* on the slide and correct the collection data in his description. In my opinion the holotype of *F. inopinata* is a smaller specimen of *F. reticulata*, NEW SYNONYMY. In compariaon with *F. reticulata*, the body is about 1.23 mm long and is lighter brown, forewings are pale with grayish brown tinge, and the measurements of the antennal segment III and setae fall in the variation given for *F. tridacana*. However, the pedicel of antennal segment III, position of interocellar setae, number of minor setae between the anteromarginal setae on the pronotum, and the posteromarginal comb are similar. The allotype is similar morphologically to males of *F. reticulata*, based on *F. fuscipennis*, but is light yellowish brown and probably is a teneral specimen.

Frankliniella reticulata is uniformly brown with orange internal pigmentation; the tarsi are yellowish brown to yellow, foretarsi are yellow, yellowish brown, or yellowish brown with margins brown, mid- and hindtibiae are completely brown to yellowish brown or yellow; ocellar crescent is red; forewings are completely brown; antennae are brown, except the pedicel of III is pale and basal one-half of III is yellowish brown, basal part of IV is pale or yellowish brown, and the short pedicel of V is brown with a pale ring just distal to it or the base of V is yellowish brown. The pedicel of antennal segment III has a small but distinct dilation, which is either rounded or angulate. The interocellar setae are positioned about midway between the anterior and posterior ocelli or are slightly closer to posterior ocelli. Two minor setae are between the anteromarginal setae on the pronotum. The forewings of 17–23 venal setae on the fore vein and 13–16 venal setae on the hind vein. Abdominal tergite VIII has a complete posteromarginal comb with short and sparse microtrichia and B1 setae on tergite IX are distinctly longer than segment X. The males are smaller, but similar in color and in most morphological characters to that of the females. Abdominal sternites III–VII each have a transversely elongate, elliptical glandular area.

Sculpturing on the lectotype of *F. reticulata* is not strongly reticulated as implied by the specific name.

Frankliniella reticulata is known from Mexico, Guatemala, Honduras, Costa Rica, Panama, Venezuela and Virgin Islands. It is commonly found on marigolds (*Tagetes*

spp.). Other recorded hosts are *Agapanthus* sp., *Chrysanthemum* sp., *Dianthus caryophyllus* L., *Gardenia* sp., *Gladiolus* sp., *Lantana* sp., *Lactuca sativa* L., *Rosa* sp., *Tithonia* sp. and *Tridax procumbens* L.

Frankliniella inutilis f. *adadusta* Moulton (1948:74) from Orizaba, Mexico, was treated as a junior synonym of *F. inutilis* by Jacot-Guillarmod (1974:794) but restored as a distinct species, *F. adadusta*, by Sakimura and O'Neill (1979:6). This species is known only from the lectotype and a paralectotype male, as designated by Sakimura and O'Neill (1979:6). In my opinion, the lectotype is a junior synonym of *F. simplex* Priesner (1924:532), **NEW SYNONYMY**, based on a comparison with a specimen of *F. simplex* identified by Priesner. The paralectotype, however, is another species, *F. reticulata*. Furthermore, *F. simplex* f. *celata* Priesner was treated as a junior synonym of *F. simplex* by Jacot-Guillarmod (1974:816). At my request, R. zur Strassen examined the types and confirmed that the synonymy was correct (pers. comm.).

The body of *Frankliniella simplex* is brown, antennae are brown except for a lighter brown segment III which is yellowish brown in basal one-third, forewings are completely brown except for a pale subbasal spot, and legs are brown except the foretibiae which are yellowish brown with margins brown. Pedicel of antennal segment III is either not enlarged or has a small enlargement. Interocellar setae on the head are separated by slightly more than a diameter of the anterior ocellus and are positioned on or slightly anterior to an imaginary line drawn between the anterior margins of the posterior ocelli. Abdominal tergite VIII has a complete posteromarginal comb, and B1 setae on tergite IX are about as long as segment X. Males of *F. simplex* have small, oval glandular areas which are less than twice as wide as long on sternites III–VII.

Frankliniella simplex is known only from Mexico and is often found on carnations, *Dianthus caryophyllus* L. Other recorded hosts are *Ananas comosus* (L.), *Celosia* sp., *Chrysanthemum* sp., *Dahlia* sp., *Gladiolus* sp., *Pisum* sp., *Rosa* sp., *Senecio* sp., *Tagetes* sp., and *T. lucida* Cav.

The primary types of *F. fuscipennis*, *F. inopinata* and *F. inutilis* f. *adadusta* are deposited in the Thysanoptera Collection of the U.S. National Museum of Natural History located at Beltsville, Maryland, not in the California Academy of Sciences as indicated by Jacot-Guillarmod (1974:779, 782, 794).

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LITERATURE CITED

- Crawford, D. L. 1910. Thysanoptera of Mexico and the South. II. Pomona College J. Entomol. 2(1):153–170.

- Hood, J. D. 1937. Studies in Neotropical Thysanoptera. III. Rev. Entomol., Rio de Janeiro, (1937) 7(1):96–115.
- Jacot-Guillarmod, C. F. 1974. Catalogue of the Thysanoptera of the world, part 3, Ann. Cape Prov. Mus. (Nat. Hist.) 7(3):517–976.
- Moulton, D. 1948. The genus *Frankliniella* Karny, with keys for the determination of species (Thysanoptera). Rev. Entomol., Rio de Janeiro 19(1–2):55–114.
- Nakahara, S. 1992. New synonyms of *Frankliniella bondari* and a review of the synonyms of *F. cephalica* (Thysanoptera: Thripidae). J. New York Entomol. Soc. 100(3):415–417.
- Priesner, H. 1924. Neue Thysanopteren. Akad. Wiss. Wien, Mathem.-naturw. Klasse, Sitzber. (1)133(10):527–542.
- Priesner, H. 1932. Neue Thysanopteren aus Mexiko, gesammelt von Prof. Dr. A. Dampf. Wiener Entomol. Zeitung 49(3):170–185.
- Sakimura, K. 1981. A review of *Frankliniella bruneri* Watson and description of *F. kelliae*, n. sp. (Thysanoptera: Thripidae). Florida Entomol. 64(4):483–491.
- Sakimura, K. and K. O'Neill. 1979. *Frankliniella*, redefinition of genus and revision of *minuta* group species (Thysanoptera: Thripidae). U.S. Dept. Agric. Tech. Bull. No. 1572, 49 pp.

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